**Homework 51** Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Trig Ratios in Context** Period:\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Failure to show all work and write in complete sentences will result in LaSalle!**

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| 1) Given that R is a right angle, find the sine, cosine, & tangent of the angles in the table.  Write the equation completely, as given in the example. Make sure to reduce!   |  |  |  |  | | --- | --- | --- | --- | | Angle | Sin | Cos | Tan | | Q | Sin(Q) =35/45 = 7/9 |  |  | | P |  |  |  | | | | |
| 2) Find Sin(A) and Cos(A)    A | 3) Find Sin(A) and Tan(A)    A | | 4) Find Cos(A) and Tan(A)  A |
| 5) Chicago, Boston, and Green Bay roughly form a right triangle. Green Bay is 200 mi north of Chicago and Boston is 900 mi east of Chicago. Assume the angle made by Chicago is a right angle.  a. What is the length of the third distance on the triangle?  b. What is the sine, cosine, and tangent of the angle made by Boston?  Green Bay    200 mi    Chicago 900 mi Boston | | | |
| 6) You are preparing to land an airplane. You are on a straight line approach path that forms a 3° vertical angle with the runway. What is the distance *d* along this approach path to your touchdown point when you are 500 feet above the ground? Round your answer to the nearest foot. | | 7) You are 50 feet from the screen at a drive-in movie. Your eye is on a horizontal line with the bottom of the screen and the angle of elevation to the top of the screen is 58°. How tall is the screen? | |

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| 8) To calculate the height *h* reached by a model rocket, you move 100 feet from the launch point and record the angle of elevationθ to the rocket at its highest point. The values of θ for three flights are given below. Find the rocket's height to the nearest foot for the given θ in each flight.   1. θ = 77° 2. θ = 81° 3. θ = 83° | | 9) You are a block away from a skyscraper that is 780 feet tall. Your friend is between the skyscraper and yourself. The angle of elevation from your position to the top of the skyscraper is 42°. The angle of elevation from your friend’s position to the top of the skyscraper is 71°. To the nearest foot, how far are you from your friend? |
| 10) You are using extension ladders to paint a chimney that is 33 feet tall. The length of an extension ladder ranges in one-foot increments from its minimum length to its maximum length. For safety, you should always use an angle of about 75.5° between the ground and the ladder. | | |
|  | a. Your smallest extension ladder has a maximum length of 17 feet. How high does this ladder safely reach on a vertical wall?  b. You place the base of the ladder 3 feet from the chimney. How many feet long should the ladder be?  c. To reach the top of the chimney, you need a ladder that reaches 30 feet high. How many feet long should the ladder be? | |
| 11) Find the perimeter of the triangle. Round to the nearest tenth. | | 12) Use the 30°-60°-90° Triangle Theorem to find the sine and cosine of a 30° angle. |